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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/072,091

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Andrew L. Norrell

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EXAMINER

TORRES, JUAN A

ART UNIT

PAPER NUMBER

2611

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/072,091

Applicant(s)

NORRELL ET AL.

Examiner

Juan A. Torres

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-17, 32-41 and 49 is/are allowed.
- 6) ☒ Claim(s) 18-31 and 42-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments, see Applicant Arguments/Remarks Made in an Amendment, filed 03/23/2006, with respect to claims 1, 42, 49, and 32 have been fully considered and are persuasive. The rejections of claims 1, 42, 49 and 32 have been withdrawn.

Applicant's arguments with respect to claim 18 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 18-31 and 42-48 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 18-31 and 42-48 are rejected because they claim a process that consists solely of the manipulation of an abstract idea that is not concrete or tangible. See *In re Warmerdam*, 33 F.3d 1354, 1360, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994). See also *Schrader*, 22 F.3d at 295, 30 USPQ2d at 1459.

Claims 18-31 and 42-48 are rejected because they don't produce any practical application that produces a useful, concrete and tangible result *State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601-02. Claims 18-31 and 42-48 don't do anything to improve the transmission of DSL signals; sampling and evaluating don't produce any practical application to improve the transmission of DSL signals.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheno (US 6507606) in view of Erreygers (US 6236664 B1).

As per claim 18 Sheno discloses a method for improving transmission of DSL signals over a local loop, comprising the steps of configuring a loop extender with communications, control, and diagnostic functionality (figure 5 column 7 line 54 to column 10 line 22). Sheno doesn't disclose sampling a digital subscriber loop signal within amplification circuitry of the loop extender to evaluate the amplification circuitry. Erreygers discloses sampling a digital subscriber loop signal within amplification circuitry of the loop extender to evaluate the amplification circuitry (figure 4 and 5 block 86; column 6 lines 2-12. A regeneration circuit will decode the signal, this will require an A/D converter and will again recode the signal and transmit the signal, that will require an amplification circuit, producing a determined level at the output in accordance with the FCC rules for phone lines such as part 68. The amplification of the signal will depend on the sampled signal in the decoder). Sheno and Erreygers teachings are analogous art because they are from the same field of endeavor. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the regeneration circuit disclosed by Erreygers with the loop extender

disclosed by Shenoi. The suggestion/motivation for doing so would have been to provides an efficient way to implement ADSL over long distances by combining a repeater for ADSL with a pair gain system (Erreygers abstract).

As per claim 19 Shenoi also discloses controlling the loop extender with a central office controller coupled to the loop extender via the local loop(column 7 line 54 to column 10 line 22); generating control signals via a processor (column 8 lines 57-67 and column 17 line 61 to column 18 line 3); and transmitting the control signals to the loop extender via the local loop when POTS signals are not present on the local loop (column 1 lines 48-60 and column 1 line 61 to column 2 line 11). It is very well known, even to a person of non-ordinary skill in the art, that when a voice modem such as the disclosed in column 1 lines 48-60 is in operation, the POTS signal can no be presents.

As per claim 20 Shenoi also discloses transmitting the control signals in a voice-frequency band (column 1 lines 48-60).

As per claim 21 Shenoi also discloses receiving and transmitting DSL signals via an ATU-C coupled to the local loop (figure 1 column 5 line 49 to column 6 line 34); and controlling access to the local loop via a DSLAM controller coupled to the processor and the ATU-C (figure 1 column 5 line 49 to column 6 line 2).

As per claim 22 Shenoi also discloses that the processor receives local loop information from the DSLAM controller (column 8 lines 57-67).

As per claim 23 Shenoi also discloses that the processor sends instructions to the DSLAM controller for operating the ATU-C (column 8 lines 57-67).

As per claim 24 Shenoï also discloses improving transmission of POTS band signals over the local loop via a POTS loading coil coupled to the local loop (figure 4 column 7 line 64 to column 8 line 14); providing communications, control, and diagnostic functionality via a diagnostic/control unit coupled to the local loop (column 7 line 54-63 and column 8 lines 57-67); and providing DSL signal amplification via amplification circuitry capacitive coupled to the local loop via bypass switches (figure 4 column 7 line 64 to column 8 line 14).

As per claim 25 Shenoï also discloses receiving the control signals from the central office controller (column 8 lines 57-67); processing the received control signals (column 8 lines 57-67); sampling DSL signal data in accordance with the processed control signals (column 8 lines 57-67); and processing the sampled DSL signal data (column 8 lines 57-67).

As per claim 26 Shenoï also discloses computing average power (figures 12 and 13, column 8 lines 57-67 and column 17 lines 46 to 60. The calculation of the average power is inherently in the calculation of the spectral density and power control).

As per claim 27 Shenoï also discloses computing peak power (figures 12 and 13, column 8 lines 57-67 and column 17 lines 46 to 60. The calculation of the peak power is inherently in the calculation of the spectral density and power control).

As per claim 28 Shenoï also discloses computing root-mean-square power (figures 12 and 13, column 8 lines 57-67 and column 17 lines 46 to 60. The calculation of the root-mean-square (rms) power is inherently in the calculation of the spectral density and power control).

As per claim 29 Shenoï also discloses computing power spectral density (figures 12 and 13, column 8 lines 57-67 and column 17 lines 46 to 60).

As per claim 30 Shenoï also discloses uncoupling that the amplification circuitry from the local loop in accordance with the processed control signals (column 8 line 57 to column 9 line 35).

As per claim 31 Shenoï also discloses coupling the amplification circuitry to the local loop in accordance with the processed control signals (column 8 line 57 to column 9 line 35).

Allowable Subject Matter

Claims 1-17, 32-41 and 49 are allowed.

The following is an examiner's statement of reasons for allowance: claims 1-17, 32-41 and 49 are allowed because the references cited fail to teach, as applicant has, an analog multiplexer / analog-to-digital (AMADC) converter coupled to the amplification circuitry to sample the digital subscriber loop signal within the amplification circuitry; and a diagnostic/control processor (DCP) coupled to the analog multiplexer/analog-to-digital converter to analyze the sampled digital subscriber loop signal and to evaluate the amplification circuitry., as the applicant has claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Juan Alberto Torres
03-29-2006

TEMESEHEN GHEBRETINSAE
PRIMARY EXAMINER
4/1/06